



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Shuguang Zhang, Alexander Rich, Lin Yan and George Whitesides

Application No.: 08/882,415 Group: 1627

Filed: June 25, 1997 Examiner: Garcia, M.

For: SELF-ASSEMBLING PEPTIDE SURFACES FOR CELL  
PATTERNING AND INTERACTIONS

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as First Class Mail in an envelope addressed to Assistant Commissioner for Patents,

Washington, D.C. 20231

on 11-8-00 Wendy Morrissey  
Date Signature  
Wendy Morrissey  
Typed or printed name of person signing certificate

DECLARATION OF SHUGUANG ZHANG PH.D. UNDER 35 U.S.C. § 1.132

Assistant Commissioner for Patents

Washington, D.C. 20231

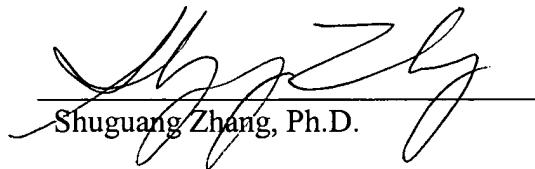
Sir:

I, Shuguang Zhang, of 25 Bowker Street, Lexington, MA, 02421, hereby declare and state:

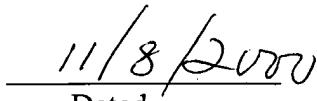
1. I, together with Alexander Rich, Lin Yan and George Whitesides, am an inventor of the subject matter described and claimed in U.S. Serial No. 08/882,415, filed June 25, 1997 and entitled "Self-Assembling Peptide Surfaces For Cell Patterning and Interactions". U.S. Serial No. 08/882,415 is hereinafter referred to as the "415 Application". I have read and am thoroughly familiar with the invention claimed therein.

2. I am a co-author of the publication Zhang *et al.*, *Biological surface engineering: a simple system for cell pattern formation*, *Biomaterials* 20:1213 (1999), hereinafter referred to as "Zhang". This publication was cited in the Office Action which was mailed from the U.S. Patent and Trademark Office on May 8, 2000 for the '415 Application. I have read and thoroughly understand Zhang.
3. Figure 1 on page 1215 of Zhang schematically shows the patterning of a gold surface with the compound 11-mercaptoundec-1-yl-(ethylene glycol)(OH(CH<sub>2</sub>CH<sub>2</sub>O)<sub>6</sub>(CH<sub>2</sub>)<sub>11</sub>SH (referred to as "EG<sub>6</sub>SH"), and Section 2.6 entitled "Pattern Formation" on page 1216 of Zhang describes how the gold surface was printed with a pattern of EG<sub>6</sub>SH. This description provides the same procedure for patterning molecules onto surfaces as is taught on page 13 line 3 through page 15, line 3 of the '415 Application (note in particular page 14, lines 25-33 and Figure 1), but for one exception. Zhang includes an extra step in which the stamp is oxidized with oxygen plasma. The oxygen plasma treatment is also discussed on the bottom of page 1218 of Zhang.
4. Printing a pattern of a SAM, including peptide SAMs, onto a surface can, however, be carried out without the oxygen plasma treatment. In fact, direct microprinting of a peptide SAM onto a surface without oxygen plasma treatment by the methods disclosed in the '415 Application has been successfully carried out in the laboratory of George Whitesides, one of the co-inventors of the 415' Application, many times. Oxidizing with oxygen plasma is an improvement that merely results in a more precisely defined pattern.
5. The use of oxygen plasma for direct patterning of peptides is an improvement developed after the filing of the subject application.
6. I further declare that all statements herein of my own knowledge are true and that all statements made on information in belief are believed to be true; and further that the statements are made with the knowledge that willful false statements of the like so made

are punishable by fine or imprisonment or both Under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereof.



Shuguang Zhang, Ph.D.



Dated